



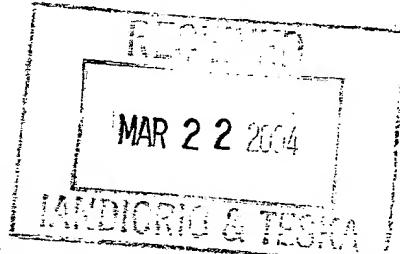
UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/741,597	11/01/1996	RICHARD M. WIESMAN	FM-147J	1419
7590	03/19/2004		EXAMINER	
IANDIORIO & TESKA 260 BEAR HILL ROAD WALTHAM, MA 02154				GOINS, DAVETTA WOODS
				ART UNIT
				PAPER NUMBER

2632
DATE MAILED: 03/19/2004

37



Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	08/741,597	WIESMAN ET AL.
	Examiner	Art Unit
	Davetta W. Goins	2632

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 15 December 2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 38-67 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 38-67 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
Paper No(s)/Mail Date _____	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the inductor 43' and non-invasive inductive coupling and/or capacitor 37' must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show the non-invasive coupling on the powerline as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. Figure 3 needs to be replaced since all of the details can not be viewed due to smudging on the page. This was indicated to the Applicant in the Notice of Draftsman Patent Drawing Review attached to paper #2.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 38-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abraham (US Pat. 5,559,377).

In reference to claims 38, 42, 54, 55, 57, 60, 63, 67, Abraham discloses 1) the claimed means for generating communication signals at a first location for transmission on a powerline, which is met by an transmitter 16, 24 useful in the power-line communication for data signals over long distances (col. 14, lines 18-41), 2) the claimed means for reactively coupling the communication signals to the powerline, which is met by the transmitter means generally comprising a driver 62 connected to the coupling means 14, 22 (col. 14, lines 18-41), and 3) the claimed means for receiving the communication signals at a second location, which is met by house 119 for receiving electric power via modem 121 and air coil transmitter and receiver coupler circuit 123 (col. 15, lines 60-67; col. 16, lines 1-19). Although Abraham does not specifically disclose the claimed coupling the communication signals to the powerline without tapping the powerline, he does disclose a transformer coupling means comprising an inductor and capacitor coupling (known as reactive coupling). The transformer coupling means comprising air coil structures (dielectric) including primary and secondary windings that are insulated to insure that the AC voltages are not transferred (contact) from the primary winding to the secondary winding (col. 7,

lines 55-67; col. 8, lines 1-61). The air coil structures function as respective inductively and capacitively coupled air-core transformers for both transmission and reception (col. 9, lines 58-67 and Figures 9A-9C). Since Abraham teaches a system using transformers that are reactively coupled to a powerline with dielectric material used on both the inductor and capacitor to insure that AC voltages are not transferred, it would have been obvious to one of ordinary skill in the art at the time of the invention to and even inherent, for Abraham's device to include a means of communicating signals without tapping to allow signals to be received and transmitted from the transformer in a manner that will ensure the powerline won't be damaged and decrease the danger for an operator trying to gain access to the device.

In reference to claim 39, Abraham discloses the claimed means for generating includes a first communications device, which is met by transmitter 16, 24 (col. 14, lines 19-41).

In reference to claims 40, 44, Abraham discloses the claimed means for reactively coupling includes a means for inductively coupling the communication signals to the powerline, which is met by The air coil structures of Abraham include inductively and capacitively coupled air-core transformers for both transmission and reception; the signals from the powerline 12 capable of be transmitted and received via house 119 (col. 9, lines 58-66; col. 16, lines 3-19).

In reference to claims 41, 43, 45, Abraham discloses the claimed means for inductively coupling includes a communications core element disposed about the powerline and a plurality of windings disposed about the communications core element for coupling the communication

signals to the powerline, which is met by air core transformers each comprising primary and secondary windings on power lines 12 (col. 8, lines 23-61 and Figures 9A-9C).

In reference to claim 46, Abraham discloses the claimed means for extracting from the powerline the communication signals transmitted from the second location, which is met by the transformer coupling means 14 and 22 capable of transmitting and receiving signals over the powerline 12 and communicating with a central computer 139, the central computer 139 issuing an addressable command that is transmitted via a master modem 141 and coupler 137 to a substation over power or phone lines 138 (col. 16, lines 21-47, and col. 7, lines 1-14).

In reference to claims 47, 48, Abraham discloses the claimed means for extracting includes the means for reactively coupling from the powerline the communication signals transmitted from the second location, which is met by a meter reading is recorded, transmitted by the home modem 121 through couplers 123, through distribution transformer 126, over powerline 129 to the appropriate coupler 135 (col. 16, lines 32-47).

In reference to claim 49, Abraham discloses the claimed means for inductively coupling includes a communications core element disposed about the powerline and a plurality of windings disposed about the communications core element, which is met by the phase shift liner transformer involves a dielectric core coupler (col. 8, lines 46-61).

In reference to claim 50, Abraham discloses the claimed means for encoding the

communication signals, which is met by central computer 139 issuing an addressable command that is transmitted via master modem 141 (col. 16, lines 33-47).

In reference to claim 51, Abraham discloses the claimed means for inductively coupling further including driver means for providing low voltage, high current pulses of the communication signals to the plurality of windings to inductively couple the pulses to the powerline, which is met by providing power line communications in which the aircore in the coupling transformer gives negligible pulse dispersion, the air coil comprising a primary winding and smaller secondary winding 40, the current is maximized by creating a band pass filter at the carrier frequency FA, and the coupling means 14, 22 are suitable for communication in association with the wide range of power-line voltages which can be used for utilizing high and low voltage through power line transformers (col. 4, lines 16-24, col. 10, lines 1-11; col. 11, lines 62-67).

In reference to claim 52, Abraham discloses the claimed storage device proximate the first location, which is met the central computer 139 issuing an addressable command that is transmitted via a master modem 141 and coupler 137 (col. 16, lines 33-47).

In reference to claim 53, Abraham discloses the claimed means for transmitting the communications signals to the storage device, which is met by substation 131 and computer 139 communicating over the power or phone line (col. 16, lines 20-32).

In reference to claim 56, Abraham discloses 1) the claimed sensor for sensing a condition of a powerline, which is met by transformer couplings 14 and 22 including each with a receiving means capable of receiving digital data signals from the power lines 12 (col. 7, lines 15-27), 2) the claimed base station remote from the sensor, which is met by house 119 (col. 16, lines 3-19), 3) the claimed means for reactively coupling a signal from the sensor onto the powerline for transmission on the remote base station, which is met by coupling means 14, 22 including LC circuits 30, 32 such that the transformers are inductively and capacitively coupled to the power line 12 (col. 7, lines 55-67; col. 9, lines 58-67; **col. 12, lines 18-41**), and 4) the claimed means for reactively coupling the signal transmitted on the powerline from the powerline to the remote base station, reactively coupling a signal generated by the base station onto the powerline, and reactively coupling the signal on the powerline from the base station to the sensor, which is met by meter reading is recorded, transmitted by the home modem 121 through couplers 123, through distribution transformer 126, over powerline 129 to appropriate substation coupler 135 (col. 16, lines 32-47). Although Abraham does not specifically disclose the claimed coupling the communication signals to the powerline without tapping the powerline, he does disclose a transformer coupling means comprising an inductor and capacitor coupling (known as reactive coupling). The transformer coupling means comprising air coil structures (dielectric) including primary and secondary windings that are insulated to insure that the AC voltages are not transferred (contact) from the primary winding to the secondary winding (col. 7, lines 55-67; col. 8, lines 1-61). The air coil structures function as respective inductively and capacitively coupled air-core transformers for both transmission and reception (col. 9, lines 58-67 and Figures 9A-9C). Since Abraham teaches a system using transformers that are reactively coupled to a

powerline with dielectric material used on both the inductor and capacitor to insure that AC voltages are not transferred, it would have been obvious to one of ordinary skill in the art at the time of the invention to and even inherent, for Abraham's device to include a means of communicating signals without tapping to allow signals to be received and transmitted from the transformer in a manner that will ensure the powerline won't be damaged and decrease the danger for an operator trying to gain access to the device.

In reference to claims 61, 62, 64, Abraham discloses the claimed inductor including a plurality of current measurement windings wound about a separating material disposed about the powerline, which is met by LC circuits including serially and parallel connected capacitor networks 34, 42 each capacitor in series to evenly divide the AC voltage with the resistors 35, 45 serving to minimize the DC current (col. 8, lines 1-15).

In reference to claims 58, 65, and 66, Abraham discloses the claimed modular core elements are formed of highly permeable ferromagnetic material, low magnetic permeability, or a material of foam, which is met by a transformer coupling circuit including an air-gap is filled with resin which insulates the AC current from the transceiver coupling means 14, 22 is of a magnetic coil 64 (col. 2, lines 16-28 and col. 14, lines 19-31). Since Lau discloses a housing including a transformer placed in a plastic molding such that it's not touching the power line, it would have been obvious to one of ordinary skill in the art at the time of the invention to use highly permeable ferromagnetic material around the core, such as the air-gap disclosed by Abraham,

with the system of Lau, to allow the magnetic signals to safely be transferred through the housing of the core elements to and from the powerline.

In reference to claim 59, Abraham discloses the claimed windings of each of the modular core elements are interconnected electrically in series or in parallel, which is met by primary winding 46 of the second air coil 44 thereafter being serially connected to the other power line 12 (col. 8, lines 30-42).

EXAMINER'S RESPONSE TO APPLICANT'S ARGUMENTS

The Applicant has argued in response to a previous office action that Abraham discloses transformer coupling devices that actually touch the power line. As stated above in this office action, Abraham clearly teaches a reactive coupling transformer device that is capable of receiving and transmitting data signals over the power line. The reactive coupling transformers including inductively and capacitively coupling, with each being encased in dielectric material.

It is unclear from the Applicant's drawing and Specification as to the exact meaning of "without tapping". The Specification states "the non-invasive coupling of communicating signals to and from a powerline according to this invention can generally be described as reactive coupling to encompass both capacitive and inductive coupling techniques." (page 14, lines 20-23 and page 15 line 1). The Applicant's Figure 3, although the complete figure can't be seen in detail due to black ink smudge, shows a voltage sensor 37 (capacitor) as well as inductive windings 24, 26, 28 connected to powerline 12. This is clearly met by Abraham's transformer coupling as shown in Figures 9A-9C. The air coil structures of Abraham include inductively and

capacitively coupled air-core transformers for both transmission and reception (col. 9, lines 58-66).

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davetta W. Goins whose telephone number is 703-306-2761. The examiner can normally be reached on Mon-Fri with every other Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Wu can be reached on 703-308-6730. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-7666.

Davetta W. Goins
Primary Examiner
Art Unit 2632

Davetta W. Goins
D.W.G.
March 17, 2004